

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1.-33. (Canceled)

34. (Previously presented) A detector assembly for detecting the presence of a molecule in an analyte comprising:

an analyte carrier having a conducting surface for receipt of an analyte in an analysis region of the surface;

a first laser radiation source arranged to provide radiation directed, in use, to the analysis region to cause Raman scattering;

a first sensor arranged to detect radiation from the first laser radiation source that has been scattered from the analysis region by Raman scattering to detect the presence of the molecule;

a second laser radiation source arranged to provide radiation, in use, to the conducting surface at an angle to the conducting surface such that a field is generated in the analysis region;

wherein the first and second laser radiation sources and the conducting surface and wavelength of the second radiation source are arranged such that the field generated by the second laser source matches a molecular vibrational energy state and thereby causes an enhanced Raman scattering effect of radiation of the first laser source.

35. (Previously presented) A detector assembly according to claim 34, wherein the conducting surface comprises a colloidal metal film.

36. (Previously presented) A detector assembly according to claim 34, wherein the metal film is one of aluminium, copper, silver or gold.

37. (Previously presented) A detector assembly according to any one of claims 34-36, wherein the conducting surface has a thickness of the order 10-100nm.

38. (Previously presented) A detector assembly according to any one of claims 34-36, wherein the conducting surface has deposited thereon a reporter dye having a binding molecule for selectively binding to an analyte molecule to be analyzed.

39. (Previously presented) A detector assembly according to claim 38 wherein the reporter dye is arranged so that, in use, the reporter dye is in the analysis region on binding with a molecule to be analyzed.

40. (Previously presented) A detector assembly according to any one of claims 34-36, wherein the analyte carrier comprises a microfluidic chip.

41. (Previously presented) A detector assembly according to claim 40, wherein the microfluidic chip includes at least one channel, a portion of the channel having the conducting surface thereon.

42. (Previously presented) A detector assembly according to claim 40, wherein the microfluidic chip includes multiple channels, each channel having a portion with a conducting surface thereon, each conducting surface having a different reporter dye deposited thereon.

43. (Previously presented) A detector assembly according to any one of claims 34-36, wherein the carrier comprises a microtiter plate.

44. (Previously presented) A detector assembly according to claim 43, wherein the microtiter plate has one or more wells, each well having the conducting surface at a bottom portion thereof.

45. (Previously presented) A detector assembly according to any one of claims 34-36, wherein the carrier comprises a prism arrangement, the conducting surface being arranged on one face of the prism.

46. (Previously presented) A detector assembly according to any one of claims 34-36, wherein the second laser radiation source is arranged to provide plane-polarised radiation to the conducting surface.

47. (Previously presented) A detector assembly according to claim 46, wherein the second laser radiation source is arranged to provide radiation at or near the critical angle to the conducting surface.

48. (Previously presented) A detector assembly according to any one of claims 34-36, wherein the conducting surface has surface plasmons of a surface plasmon wavelength, and the second laser radiation source is arranged to provide radiation at substantially the surface plasmon wavelength.

49. (Previously presented) A detector assembly according to claim 47, wherein the second laser source is arranged for surface plasmon resonance detection, the detector assembly further comprising a second sensor arranged to detect radiation from the second laser light source refracted from the surface.

50. (Previously presented) A detector assembly according to claim 49, wherein the second sensor comprises a single sensor arranged to detect a change in intensity of the refracted radiation to detect the presence of the molecule.

51. (Previously presented) A detector assembly according to claim 49, wherein the sensor comprises an array of sensors arranged to detect a change in angle of the refracted radiation to detect the presence of the molecule.

52.-63. (Cancelled)

64. (Previously presented) A detector for detecting the presence of a molecule in an analyte on an analyte carrier having a conducting surface for receipt of an analyte in an analysis region of the surface, comprising:

a first laser radiation source arranged to provide radiation directed, in use, to the analysis region to cause Raman scattering;

a first sensor arranged to detect radiation from the first laser radiation source that has been scattered from the analysis region by Raman scattering to detect the presence of the molecule;

a second laser radiation source arranged to provide radiation, in use, to the conducting surface at an angle to the conducting surface such that a field is generated in the analysis region;

wherein the first and second laser radiation sources and the conducting surface and wavelength of the second radiation source are arranged such that the field generated by the second laser source matches a molecular vibrational energy state and thereby causes an enhanced Raman scattering effect of radiation of the first laser source.

65. (Previously presented) A method of detecting the presence of a molecule in an analyte, comprising:

- providing the analyte on an analysis region of a conducting surface;
- illuminating the analysis region with first laser radiation to cause Raman scattering;
- detecting radiation scattered from the analysis region by Raman scattering to detect the presence of the molecule;

- simultaneously illuminating the conducting surface with second laser radiation at an angle to the conducting surface and wavelength such that the field generated by the second laser source matches a molecular vibrational energy state to generate a field in the analysis region; and
- wherein the field generated in the analysis region enhances the Raman scattering effect.